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| 23416 7590 02/18/2010 CONNOLLY BOVE LODGE & HUTZ, LLP P O BOX 2207 WILMINGTON, DE 19899 | | | | |
| EXAMINER NEGRELLI, KARA B | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/581,679

Applicant(s)

HAHN ET AL.

Examiner

KARA NEGRELLI

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 and 10-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-9 and 18-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 12, 2009 has been entered.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action. Claims 1-6 and 10-17 were previously withdrawn are pending. Claims 7-9 and 18-23 (claims 18-23 of which were previously renumbered) are pending. Throughout the remainder of this office action (as in the last office action), claim 17 will be referred to as claim 18, claim 18 will be referred to as claim 19, claim 19 will be referred to as claim 20, claim 20 will be referred to as claim 21, claim 21 will be referred to as claim 22, and claim 22 will be referred to as claim 23.
3. Any rejections stated in the previous Office Action and not repeated below are withdrawn.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 7, 9, and 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (US 4,098,941).
6. Johnson teaches molten polystyrene polymer products which are produced by incorporating a foaming agent into a pelletized solid thermoplastic material (pelletized polystyrene, column 5, lines 29-30) (rendering the material expandable) (column 5, lines 20-22). The polymer further comprises an absorbent such as alumina, clay, silica, or activated carbon (graphite) (column 5, lines 20-23 and 38-42) in an amount of 0.1 to 15%, preferably 0.5 to 10%, and up to 30% by weight of the polymer (column 5, lines 42-45). The foaming agent is present in an amount of 0.1 to 15% by weight based on the polystyrene to be expanded (column 5, line 68 to column 6, line 2). The absorbent may have a particle size of 200 mesh or below (74 microns or below) (column 5, lines 45-47).
7. The amount of absorbent of Johnson overlaps the amount of filler in instant claim 7.
7. The amount of blowing agent of Johnson overlaps the amount of blowing agent of instant claim 9. The particle size of the absorbent overlaps the particle size of the filler of instant claim 21. It is well settled that where the prior art describes the components of a claimed compound or compositions in concentrations within or overlapping the claimed concentrations a prima facie case of obviousness is established. See *In re Harris*, 409 F.3d 1339, 1343, 74 USPQ2d 1951, 1953 (Fed. Cir 2005); *In re Peterson*, 315 F.3d 1325, 1329, 65 USPQ 2d 1379, 1382 (Fed. Cir. 1997); *In re Woodruff*, 919 F.2d 1575, 1578 16 USPQ2d 1934, 1936-37 (CCPA 1990); *In re Malagari*, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974).

8. Johnson does not expressly teach using a combination of the listed absorbents, such as silica or alumina and activated carbon (graphite). However, "it is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980).

9. Claims 8 and 23 rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (US 4,098,941) and further in view of Glück et al. (US 6,340,713) and Tung et al. (US 6,214,897).

10. Johnson teaches the molten polystyrene polymer products as applied to claim 7, but does not expressly teach that the polymer further comprises from 2 to 40% by weight of expandable graphite with an average particle size from 10 to 1000 µm.

11. However, Glück et al. teach expandable styrene polymers comprising graphite particles (column 2, lines 1-6). The styrene polymers may comprise expandable particles (column 4, lines 3-5). The graphite used has a mean particles size of from 1 to 50 µm (column 2, line 36-37). The graphite particles are preferably present in the styrene polymer in amounts of from 0.05% to 25% by weight (column 2, lines 40-42).

The expandable styrene polymers further comprise from 3 to 10% by weight, based on the weight of the polymer, of a blowing agent (column 3, lines 61-62).

12. It would have been obvious for one of ordinary skill in the art at the time the invention was made to use graphite particles, as taught by Glück et al., in the pelletized thermoplastic polymer (styrene) of Johnson because the expandable products of Glück et al. which contain graphite particles have reduced thermal conductivity (column 4, lines 20-23). Furthermore, when moldings are formed from the expandable styrene polymers of Glück et al., the addition of graphite particles to the polymers leads to a shortening of from 10 to 90% in the cooling time until welded materials can be removed from the mold (column 4, lines 13-16).

13. Glück et al. teach do not expressly teach that the graphite is expandable. However, Tung et al. teach a foamable polymer composition comprising 1 to 10 parts by weight blowing agent (based on 100 parts by weight polymer composition) (column 10, lines 26-30), 0 to 60 parts by weight (based on 100 parts polymer composition) of a filler such as a silicate filler, aluminum oxides, chalk, or clay (column 10, lines 55-65), and a flame retardant such as phosphates, red phosphorous (column 10, lines 42-43), expandable graphite (column 10, line 49), or mixtures thereof (column 10, lines 50-54).

14. It would have been obvious to one of ordinary skill in the art to use expandable graphite and phosphates as taught by Tung et al. for use in the compositions of Glück et al. and Johnson in order to enhance the flame retardant properties of the styrene products (Tung et al., column 10, lines 36-37).

Response to Arguments

15. Applicant's arguments filed January 27, 2009 have been fully considered but they are not persuasive.

16. Applicant argues that the Johnson (US 4,098,941) document's object is forming a strong and rigid object, and that several components *may* be added during the process of forming the polystyrene foam extrudate of the invention. Applicant argues that Johnson only describes a means for the production of said polystyrene foam extrudate and not the resulting expandable palletized thermoplastic polymer material of the claimed invention.

17. Applicant's argument is not persuasive. Column 5, lines 20-27 of Johnson teach incorporating a foaming agent into a polymer material by premixing the pelletized solid thermoplastic polymer, e.g. a styrene polymer, with a minor amount of absorbent having absorbed thereof a volatile liquid. Before activation of the blowing agent, the premixed, pelletized thermoplastic polymer material, e.g. styrene, is an expandable pelletized thermoplastic material. As stated above, the absorbent may comprise alumina, clay, silica, or activated carbon (graphite) (column 5, lines 20-23 and 38-42) in an amount of 0.1 to 15%, preferably 0.5 to 10%, and up to 30% by weight of the polymer (column 5, lines 42-45). The absorbent may have a particle size of 200 mesh or below (74 microns or below) (column 5, lines 45-47). The foaming agent is present in an amount of 0.1 to 15% by weight based on the polystyrene to be expanded (column 5, line 68 to column 6, line 2). The amount of absorbent of Johnson overlaps the amount of filler in instant claim 7. The amount of blowing agent of Johnson overlaps the amount of

blowing agent of instant claim 9. The particle size of the absorbent overlaps the particle size of the filler of instant claim 21. It is well settled that where the prior art describes the components of a claimed compound or compositions in concentrations within or overlapping the claimed concentrations a prima facie case of obviousness is established. See *In re Harris*, 409 F.3d 1339, 1343, 74 USPQ2d 1951, 1953 (Fed. Cir. 2005); *In re Peterson*, 315 F.3d 1325, 1329, 65 USPQ 2d 1379, 1382 (Fed. Cir. 1997); *In re Woodruff*, 919 F.2d 1575, 1578 16 USPQ2d 1934, 1936-37 (CCPA 1990); *In re Malagari*, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974).

18. As previously stated, while Johnson does not expressly teach using a combination of the listed absorbents, such as silica or alumina and activated carbon (graphite), "it is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980).

19. Applicant further argues that Johnson clearly emphasizes that the disclosed extrudate is distinguished from other patents "by its ability to very precisely control the cooling conditions of a particular thermoplastic, polystyrene foam, so as to greatly enhance that materials' strength properties," and the current invention utilizes the unusual properties of a particular coolant to produce a unique polystyrene foam extrudate having a density gradient of decreasing value from the outside surface to the core."

20. The fact that Johnson teaches that the extrudate of the invention has the additional advantage described above does not negate a finding of obviousness under 35 U.S.C 103 (a), given that Johnson teaches incorporating a foaming agent into a polymer material by premixing the pelletized solid thermoplastic polymer, e.g. a styrene polymer, with a minor amount of absorbent having absorbed thereof a volatile liquid. Before activation of the blowing agent, the premixed, pelletized thermoplastic polymer material, e.g. styrene, is an expandable pelletized thermoplastic material.

21. It is further noted that the features upon which applicant relies (i.e., strength properties and presence of a coolant) are not recited in the rejected claims.

22. Additionally, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

23. In response to applicant's arguments against *Glück et al.* (US 6,340,713) and *Tung et al.* (US 6,214,897) individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Note that while *Glück et al.* and *Tung et al.* do not disclose all the features of the present claimed invention, *Glück et al.* and *Tung et al.* are used as teaching references, and therefore, it is not necessary for this secondary references to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413,

208 USPQ 871, 881 (CCPA 1981). Rather these reference teach certain concepts (Glück et al. teaches graphite particles in an amount of 0.05% to 25% by weight and Tung et al. teach expandable graphite and phosphates and/or red phosphorous used in a foamable polymer composition), and in combination with the primary reference, discloses the presently claimed invention.

24. In response to the applicants' argument that one would not rely on or have an apparent reason reason to modify Johnson to achieve the claimed invention, as it is stated above: It would have been obvious for one of ordinary skill in the art at the time the invention was made to use graphite particles, as taught by Glück et al., in the pelletized thermoplastic polymer (styrene) of Johnson because the expandable products of Glück et al. which contain graphite particles have reduced thermal conductivity (column 4, lines 20-23). Furthermore, when moldings are formed from the expandable styrene polymers of Glück et al., the addition of graphite particles to the polymers leads to a shortening of from 10 to 90% in the cooling time until welded materials can be removed from the mold (column 4, lines 13-16). It would have been obvious to one of ordinary skill in the art to use expandable graphite and phosphates as taught by Tung et al. for use in the compositions of Glück et al. and Johnson in order to enhance the flame retardant properties of the styrene products (Tung et al., column 10, lines 36-37).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARA NEGRELLI whose telephone number is

(571)270-7338. The examiner can normally be reached on Monday through Friday 9:30 am EST to 6:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571)272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KARA NEGRELLI/
Examiner, Art Unit 1796

/RANDY GULAKOWSKI/
Supervisory Patent Examiner, Art Unit 1796

